From the Flames, the Phoenix: The Physics Department at the University of Chicago

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The University of Chicago adopted its coat of arms in 1910. Part of its design depicts a phoenix emerging from flames. In myth, the phoenix is a legendary bird that is reborn after bursting into fire. Like the flames of the university's coat of arms, scientists at the university have sparked important research in the field of physics.

The American Baptist Education Society established the university in 1890 to promote and develop science. The founders wanted to educate people of all kinds, and as a result, they allowed women and members of any religion to enroll. Oil magnate John D. Rockefeller provided funding for the university's early development and attracted some of the brightest scholars by offering them a competitive salary.

Physics at the University of Chicago became crucial to national defense after World War I. Many of the university's Nobel laureates in physics worked at the Metallurgical Lab, a "cover" name for the facility at the university's campus whose goal was to produce the first nuclear reaction. Julian Schwigger, Hans Albrecht Bethe, Eugene P. Wigner, Maria Goeppert Mayer, and Enrico Fermi all conducted research there. They concentrated on the atom at the nuclear level.

During World War II, the United States government thought Germany had developed a powerful new weapon. In 1939, Albert Einstein informed President Franklin D. Roosevelt that nuclear fission could be used to create a powerful bomb, and the

Manhattan Project resulted. After the attack on Pearl Harbor in 1941, teams of scientists across the United States contributed to this project.

In 1942, a group of scientists at the University of Chicago led by Enrico Fermi started work on the first self-sustaining nuclear chain reaction. A labor strike prevented them from building their laboratory in the Argonne forest preserve near Chicago. Instead, they worked on a racquet court under the football stands at Stagg Field on the University of Chicago campus. The world's first nuclear reactor, called Chicago Pile-1, consisted of a heap of uranium and graphite blocks. On December 2, 1942, at 3:20 p.m. the pile "went critical," a nuclear reaction occurred, and the atomic age began.

Research in nuclear physics for peaceful purposes continues at Argonne Laboratory and at the Fermi National Accelerator Laboratory, both of which the University of Chicago manages. Today, the physics department at the University of Chicago is one of the world's best. Physicists study applied physics, theoretical physics, and experimental physics, and they conduct research in particle theory, string theory, field theory, general relativity, and theoretical astrophysics and cosmology. A major research area in experimental physics continues to be nuclear physics, and a sculpture resembling a "mushroom-cloud" sits on the site where the first nuclear reaction took place. Forty-one faculty members at the University have been members of the National Academy of Sciences; eight have received the National Medal of Science, and twenty-five faculty members, teachers, and students have won the Nobel Prize in Physics. Academic institutes and research centers affiliated with the university's physics department include Apache Point Observatory, Yerkes Observatory, the Computation Institute, the Institute for Biophysical Dynamics, and the Institute for Body and Mind.

Along with the phoenix, a motto appears on the University of Chicago's coat of arms: *Crescat Sientia,Vita Exolatur*, "Let knowledge be increased so that life may be enriched." The university has achieved this goal in science. The physics department at the University of Chicago is truly one of the best in the world. [From Argonne National Laboratory, "Science and Technology: Argonne Accomplishments and Discoveries." www.anl.gov/Science_and_Technology/Accomplishments/index.html (October 10, 2005); "Chicago Pile-1." http://en.wikipedia.org/wiki/Chicago_Pile_1 (Sept. 29, 2005); Fermilab, "Fermilab's Contributions to Science & Society." www.final.gov/pub/inquiring/physics/discovering/index.html (Oct. 10, 2005); "Manhattan Project." http://en.wikipedia.org/wiki/Manhattan_Project (Sept. 29, 2005); Manhattan Project Signature Facilities. http://ma.mbe.doe.gov/me70/history/met_lab.htm (Sept. 29, 2005); "Metallurgical Laboratory." http://en.wikipedia.org/wiki/UniversityofChicagoMetallurgicalLaboratory (Sept. 29, 2005); Encyclopedia of Chicago, "University of Chicago.". www.encyclopedia.chicagohistory.org/pages/1289.html (Aug. 31, 2005); Doctoral Program in Physics, University of Chicago Department of Physics http://physics.uchicago.edu/program/html (Oct. 5, 2005); University of Chicago Fact Sheet www-news.uchicago.edu/resources/facts/ (Aug. 31, 2005); University of Chicago History www.uchicagox.com/index.php?act=userdef&p_code=47789 (Aug. 31, 2005); University of Chicago Physics Nobel Laureates. www-news.uchicago.edu/resources/nobel/physics.html (Sept. 29, 2005).]